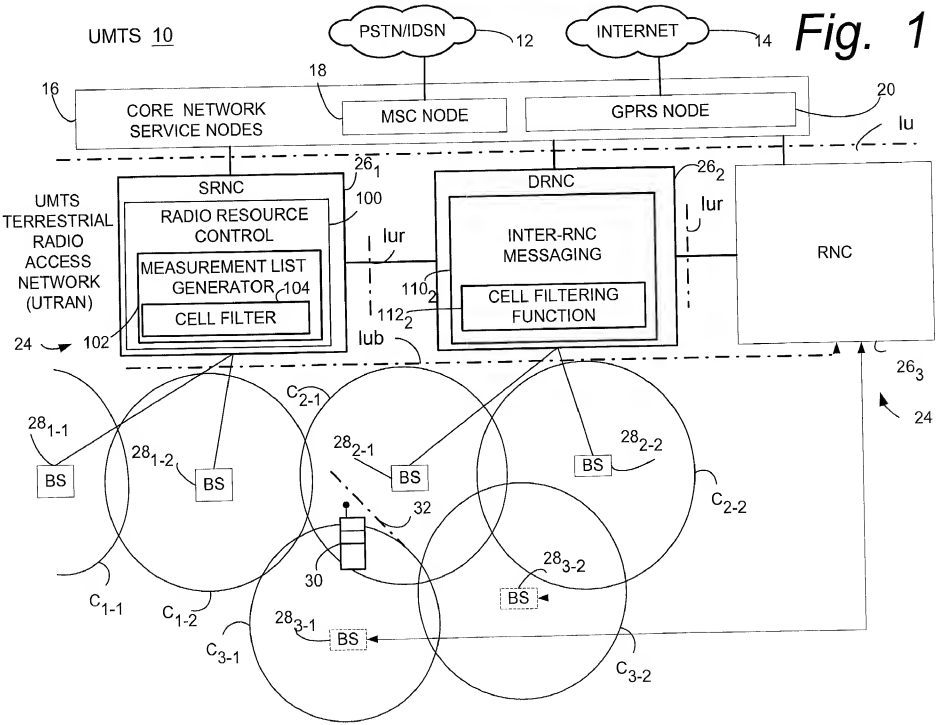
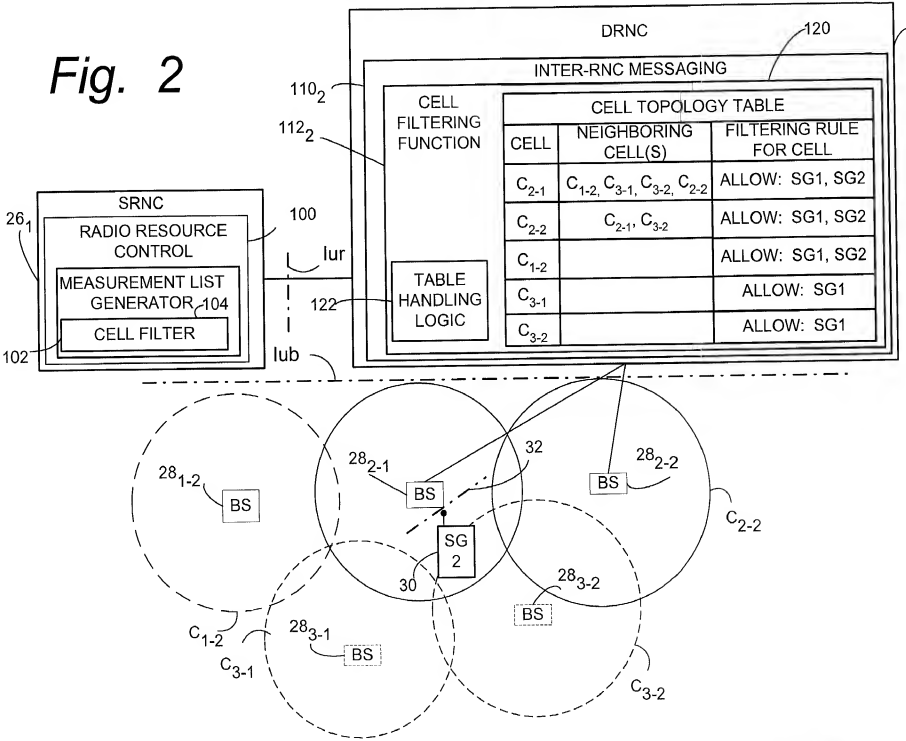

UMTS 10
PSTN/IDSN
12
INTERNET
14
16
CORE NETWORK SERVICE NODES
18
MSC NODE
GPRS NODE
20
Iu
UMTS TERRESTRIAL RADIO ACCESS NETWORK (UTRAN)
SRNC
26 1
100
RADIO RESOURCE CONTROL
MEASUREMENT LIST GENERATOR 104
CELL FILTER
24
102
Iur
DRNC
26 2
INTER-RNC MESSAGING
110 2
112 2
CELL FILTERING FUNCTION
Iur
RNC
lub
26 3
24
C 2-1
28 1-1
28 1-2
28 2-1
28 2-2
BS
C 2-2
32
30
28 3-2
C 1-1
C 1-2
28 3-1
C 3-1
C 3-2

Fig. 1

Fig. 2


DRNC
120
26_2
INTER-RNC MESSAGING
110_2
CELL FILTERING FUNCTION
112_2
CELL TOPOLOGY TABLE
CELL
NEIGHBORING CELL(S)
FILTERING RULE FOR CELL
C_{2-1} | C_{1-2}, C_{3-1}, C_{3-2}, C_{2-2} | ALLOW: SG1, SG2
C_{2-2} | C_{2-1}, C_{3-2} | ALLOW: SG1, SG2
C_{1-2} | | ALLOW: SG1, SG2
C_{3-1} | | ALLOW: SG1
C_{3-2} | | ALLOW: SG1
TABLE HANDLING LOGIC
122
SRNC
26_1
RADIO RESOURCE CONTROL
100
Iur
MEASUREMENT LIST GENERATOR
104
CELL FILTER
102
Iub
28_{1-2}
BS
28_{2-1}
BS
32
SG 2
30
28_{2-2}
BS
C_{2-2}
28_{3-2}
BS
C_{1-2}
C_{3-1}
28_{3-1}
BS
C_{3-2}

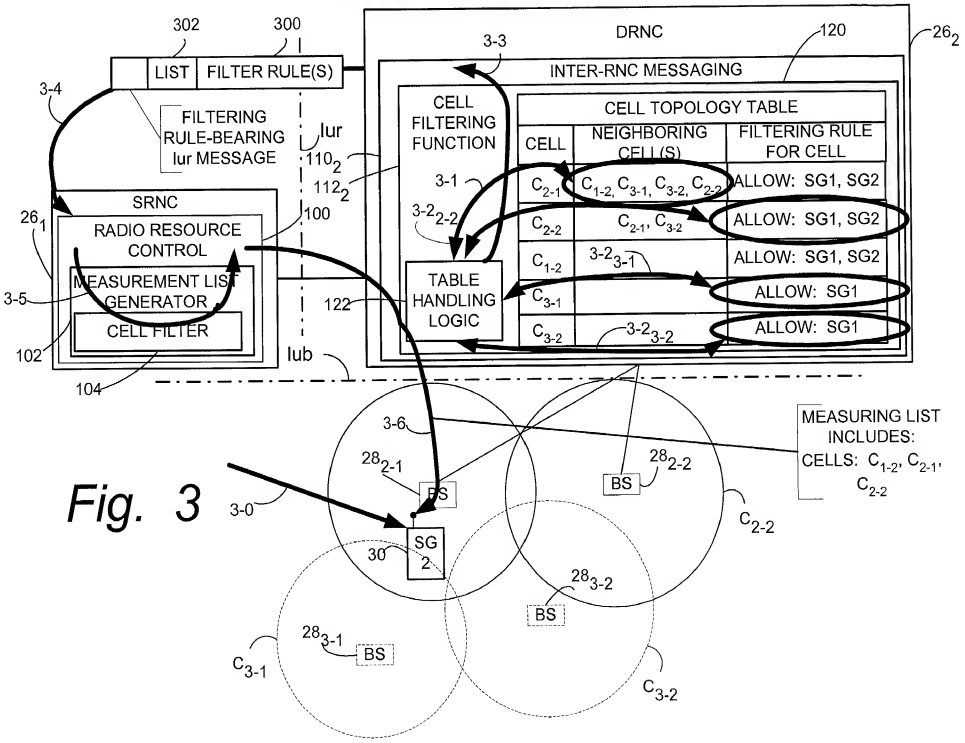

302
300
LIST
FILTER RULE(S)
3-4
FILTERING RULE-BEARING Iur MESSAGE
Iur
110 2
112 2
SRNC
26 1
RADIO RESOURCE CONTROL
100
MEASUREMENT LIST GENERATOR
3-5
CELL FILTER
102
104
Iub
122
DRNC
120
26 2
3-3
INTER-RNC MESSAGING
CELL FILTERING FUNCTION
3-1
3-2 2-2
TABLE HANDLING LOGIC
CELL TOPOLOGY TABLE
CELL
NEIGHBORING CELL(S)
FILTERING RULE FOR CELL
C 2-1
C 1-2, C 3-1, C 3-2, C 2-2
ALLOW: SG1, SG2
C 2-2
C 2-1, C 3-2
ALLOW: SG1, SG2
C 1-2
3-2 3-1
ALLOW: SG1, SG2
C 3-1
ALLOW: SG1
C 3-2
3-2 3-2
ALLOW: SG1
3-6
MEASURING LIST INCLUDES: CELLS: C 1-2, C 2-1, C 2-2
28 2-1
BS
28 2-2
BS
C 2-2
3-0
SG 2
30
28 3-2
BS
28 3-1
BS
C 3-1
C 3-2

Fig. 3

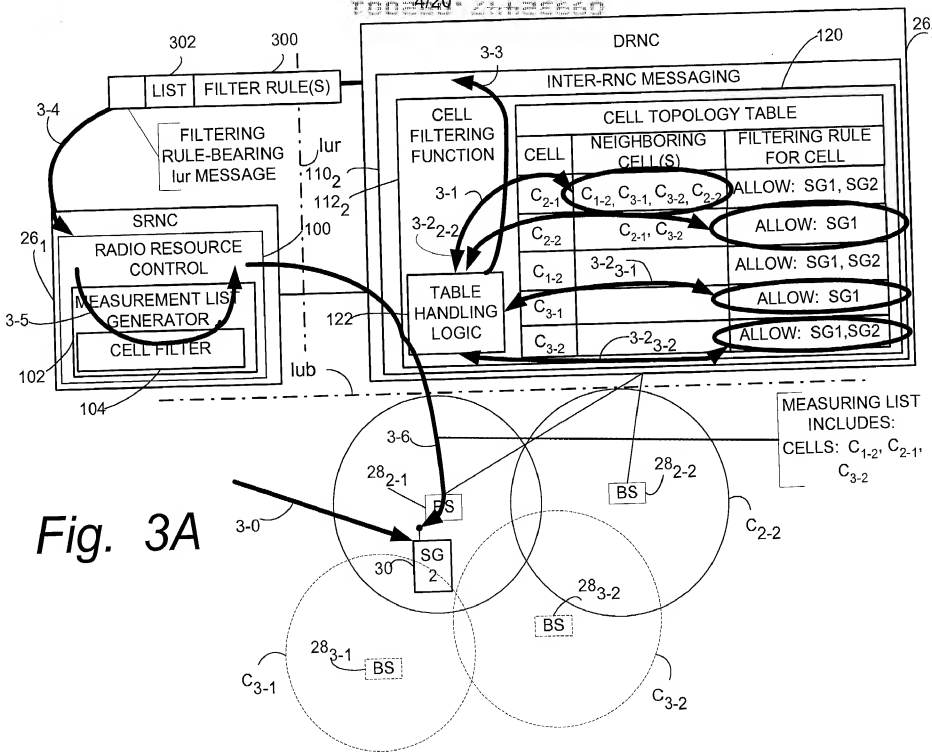

302
300
LIST
FILTER RULE(S)
3-4
FILTERING RULE-BEARING Iur MESSAGE
Iur
110 2
112 2
DRNC
120
262
3-3
INTER-RNC MESSAGING
CELL FILTERING FUNCTION
CELL TOPOLOGY TABLE
CELL
NEIGHBORING CELL(S)
FILTERING RULE FOR CELL
C2-1
C1-2, C3-1, C3-2, C2-2
ALLOW: SG1, SG2
3-1
3-2 2-2
C2-2
C2-1, C3-2
ALLOW: SG1
C1-2
3-2 3-1
ALLOW: SG1, SG2
C3-1
ALLOW: SG1
C3-2
3-2 3-2
ALLOW: SG1,SG2
SRNC
261
RADIO RESOURCE CONTROL
100
MEASUREMENT LIST GENERATOR
3-5
CELL FILTER
102
104
TABLE HANDLING LOGIC
122
Iub
MEASURING LIST INCLUDES: CELLS: C1-2, C2-1, C3-2
3-6
282-1
BS
282-2
BS
C2-2
3-0
SG 2
30
283-2
BS
283-1
BS
C3-1
C3-2

Fig. 3A

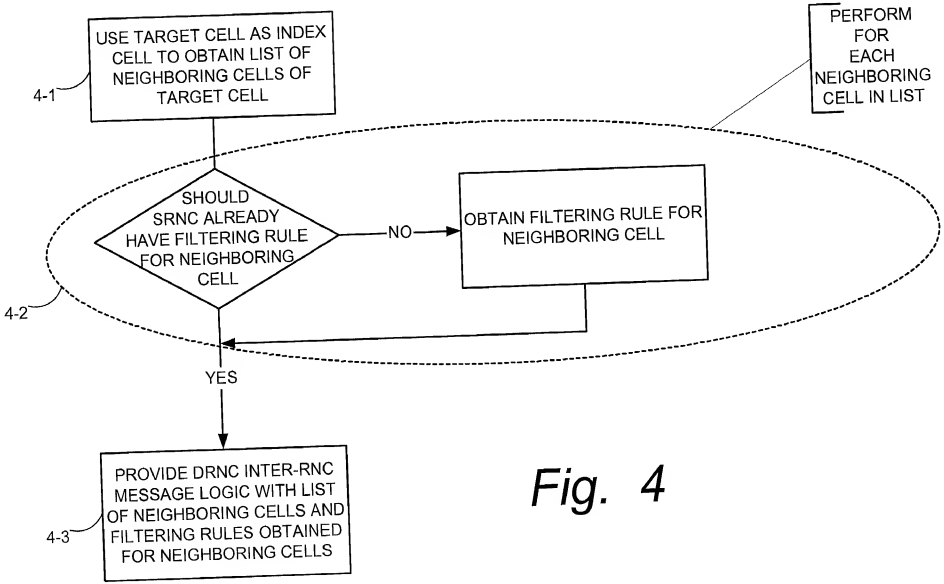

USE TARGET CELL AS INDEX CELL TO OBTAIN LIST OF NEIGHBORING CELLS OF TARGET CELL
4-1
PERFORM FOR EACH NEIGHBORING CELL IN LIST
SHOULD SRNC ALREADY HAVE FILTERING RULE FOR NEIGHBORING CELL
NO
OBTAIN FILTERING RULE FOR NEIGHBORING CELL
4-2
YES
PROVIDE DRNC INTER-RNC MESSAGE LOGIC WITH LIST OF NEIGHBORING CELLS AND FILTERING RULES OBTAINED FOR NEIGHBORING CELLS
4-3

Fig. 4

120A(1)

CELL TOPOLOGY TABLE		
CELL	NEIGHBORING CELL(S)	FILTERING RULE FOR CELL: ALLOWED SGs
$C_{2\text{-}1}$	$C_{1\text{-}2}$, $C_{3\text{-}1}$, $C_{3\text{-}2}$, $C_{2\text{-}2}$	ALLOW: SG1, SG2
$C_{2\text{-}2}$	$C_{2\text{-}1}$, $C_{3\text{-}2}$	ALLOW: SG1, SG2
$C_{1\text{-}2}$		ALLOW: SG1, SG2
$C_{3\text{-}1}$		ALLOW: SG1
$C_{3\text{-}2}$		ALLOW: SG1

Fig. 5A(1)

120C(1)

CELL TOPOLOGY TABLE					
CELL	NEIGHBORING CELL(S)	FILTERING RULE FOR CELL: ALLOWED SBs			
$C_{2\text{-}1}$	$C_{1\text{-}2}$, $C_{3\text{-}1}$, $C_{3\text{-}2}$, $C_{2\text{-}2}$	BITMAP:	SG1	SG2	
$C_{2\text{-}2}$	$C_{2\text{-}1}$, $C_{3\text{-}2}$	BITMAP:	SG1	SG2	
$C_{1\text{-}2}$		BITMAP:	SG1	SG2	
$C_{3\text{-}1}$		BITMAP:	SG1	SG2	
$C_{3\text{-}2}$		BITMAP:	SG1	SG2	

Fig. 5C(1)

120B(1)

CELL TOPOLOGY TABLE		
CELL	NEIGHBORING CELL(S)	FILTERING RULE FOR CELL: DISALLOWED SGs
$C_{2\text{-}1}$	$C_{1\text{-}2}$, $C_{3\text{-}1}$, $C_{3\text{-}2}$, $C_{2\text{-}2}$	DISALLOW: ...
$C_{2\text{-}2}$	$C_{2\text{-}1}$, $C_{3\text{-}2}$	DISALLOW: ...
$C_{1\text{-}2}$		DISALLOW: ...
$C_{3\text{-}1}$		DISALLOW: SG2
$C_{3\text{-}2}$		DISALLOW: SG2

Fig. 5B(1)

120D(1)

CELL TOPOLOGY TABLE					
CELL	NEIGHBORING CELL(S)	FILTERING RULE FOR CELL: DISALLOWED SGs			
$C_{2\text{-}1}$	$C_{1\text{-}2}$, $C_{3\text{-}1}$, $C_{3\text{-}2}$, $C_{2\text{-}2}$	BITMAP:	SG1	SG2	
$C_{2\text{-}2}$	$C_{2\text{-}1}$, $C_{3\text{-}2}$	BITMAP:	SG1	SG2	
$C_{1\text{-}2}$		BITMAP:	SG1	SG2	
$C_{3\text{-}1}$		BITMAP:	SG1	SG2	
$C_{3\text{-}2}$		BITMAP:	SG1	SG2	

Fig. 5D(1)

120A(2)

CELL TOPOLOGY TABLE		
CELL	NEIGHBORING CELL(S)	FILTERING RULE FOR CELL: ALLOWED IMSI OR PLMNid
C_{2-1}	C_{1-2}, C_{3-1}, C_{3-2}, C_{2-2}	IMSI->OP1, OP2
C_{2-2}	C_{2-1}, C_{3-2}	IMSI->OP1, OP2
C_{1-2}		IMSI->OP1, OP2
C_{3-1}		IMSI->OP1
C_{3-2}		IMSI->OP1

Fig. 5A(2)

120C(2)

CELL TOPOLOGY TABLE					
CELL	NEIGHBORING CELL(S)	FILTERING RULE FOR CELL: ALLOWED IMSI OR PLMNid			
C_{2-1}	C_{1-2}, C_{3-1}, C_{3-2}, C_{2-2}	BITMAP:	OP1	OP2	
C_{2-2}	C_{2-1}, C_{3-2}	BITMAP:	OP1	OP2	
C_{1-2}		BITMAP:	OP1	OP2	
C_{3-1}		BITMAP:	OP1	OP2	
C_{3-2}		BITMAP:	OP1	OP2	

Fig. 5C(2)

120B(2)

CELL TOPOLOGY TABLE		
CELL	NEIGHBORING CELL(S)	FILTERING RULE FOR CELL: DISALLOWED IMSI OR PLMNid
C_{2-1}	C_{1-2}, C_{3-1}, C_{3-2}, C_{2-2}	IMSI->...
C_{2-2}	C_{2-1}, C_{3-2}	IMSI->...
C_{1-2}		IMSI->...
C_{3-1}		IMSI->OP2
C_{3-2}		IMSI->OP2

Fig. 5B(2)

120D(2)

CELL TOPOLOGY TABLE					
CELL	NEIGHBORING CELL(S)	FILTERING RULE FOR CELL: DISALLOWED IMSI OR PLMNid			
C_{2-1}	C_{1-2}, C_{3-1}, C_{3-2}, C_{2-2}	BITMAP:	OP1	OP2	
C_{2-2}	C_{2-1}, C_{3-2}	BITMAP:	OP1	OP2	
C_{1-2}		BITMAP:	OP1	OP2	
C_{3-1}		BITMAP:	OP1	OP2	
C_{3-2}		BITMAP:	OP1	OP2	

Fig. 5D(2)

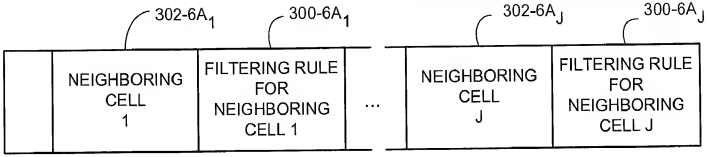


Fig. 6A

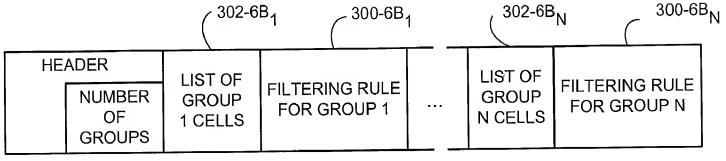


Fig. 6B

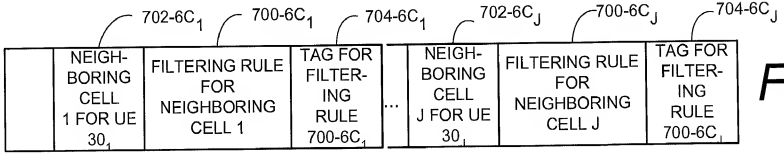


Fig. 6C

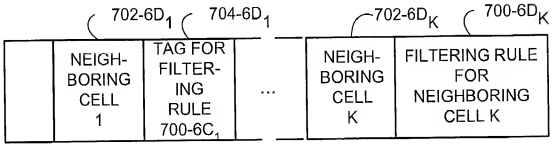


Fig. 6D

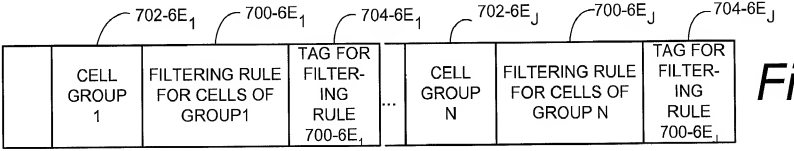

702-6E1
700-6E1
704-6E1
702-6EJ
700-6EJ
704-6EJ
CELL GROUP 1
FILTERING RULE FOR CELLS OF GROUP1
TAG FOR FILTER-ING RULE 700-6E1
...
CELL GROUP N
FILTERING RULE FOR CELLS OF GROUP N
TAG FOR FILTER-ING RULE 700-6EJ

Fig. 6E

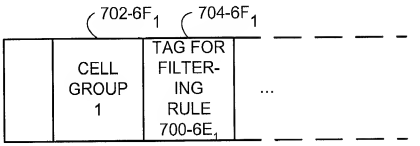

702-6F1
704-6F1
CELL GROUP 1
TAG FOR FILTER-ING RULE 700-6E1
...

Fig. 6F

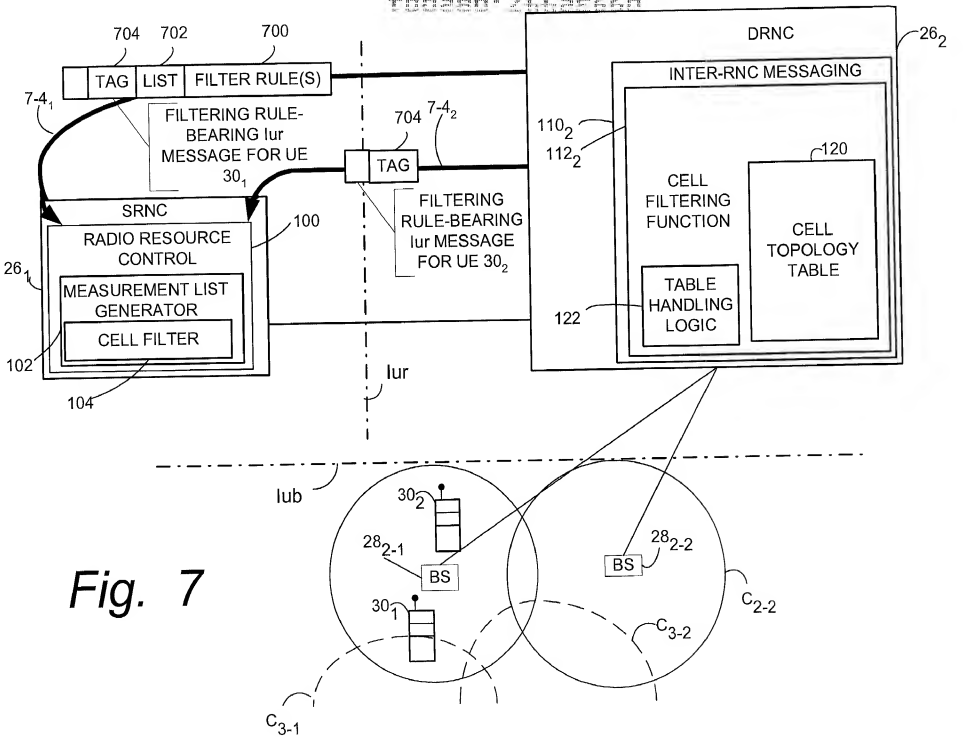

704
702
700
TAG
LIST
FILTER RULE(S)
7-4$_1$
FILTERING RULE-BEARING Iur MESSAGE FOR UE 30$_1$
704
7-4$_2$
TAG
FILTERING RULE-BEARING Iur MESSAGE FOR UE 30$_2$
SRNC
RADIO RESOURCE CONTROL
100
26$_1$
MEASUREMENT LIST GENERATOR
CELL FILTER
102
104
Iur
DRNC
26$_2$
INTER-RNC MESSAGING
110$_2$
112$_2$
120
CELL FILTERING FUNCTION
CELL TOPOLOGY TABLE
TABLE HANDLING LOGIC
122
Iub
30$_2$
28$_{2-1}$
BS
30$_1$
28$_{2-2}$
BS
C$_{2-2}$
C$_{3-2}$
C$_{3-1}$

Fig. 7

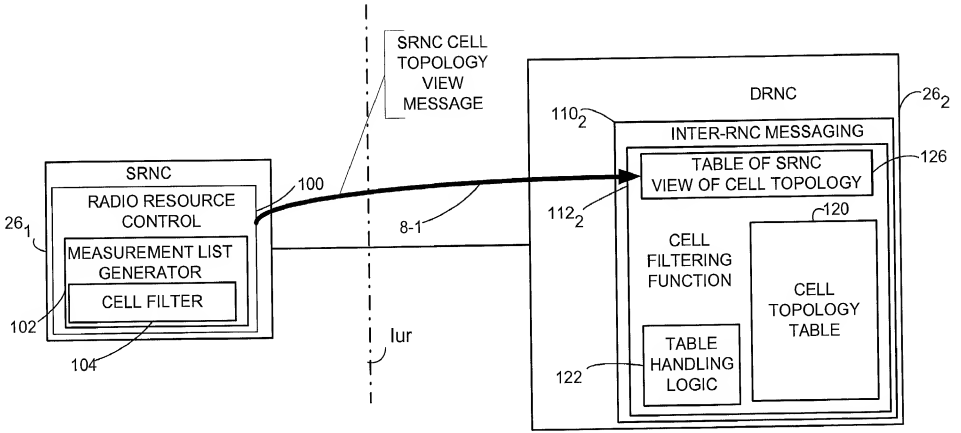

SRNC CELL TOPOLOGY VIEW MESSAGE
SRNC
RADIO RESOURCE CONTROL
MEASUREMENT LIST GENERATOR
CELL FILTER
26_1
102
104
100
8-1
Iur
DRNC
26_2
110_2
INTER-RNC MESSAGING
TABLE OF SRNC VIEW OF CELL TOPOLOGY
126
112_2
120
CELL FILTERING FUNCTION
CELL TOPOLOGY TABLE
TABLE HANDLING LOGIC
122

Fig. 8

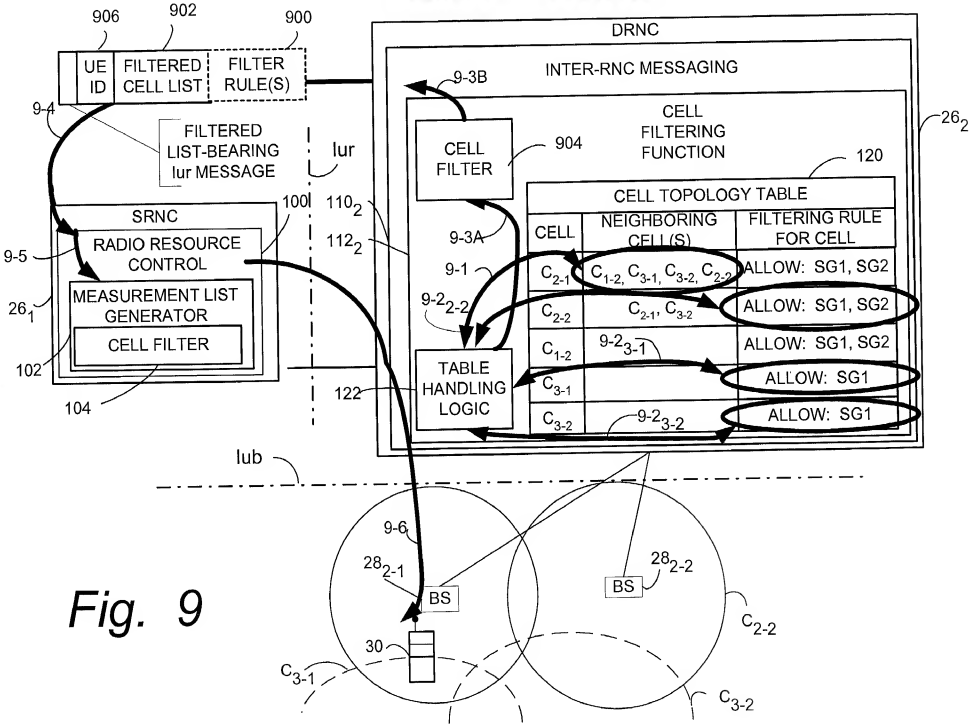

906
902
900
UE ID
FILTERED CELL LIST
FILTER RULE(S)
9-4
FILTERED LIST-BEARING Iur MESSAGE
Iur
SRNC
100
RADIO RESOURCE CONTROL
9-5
MEASUREMENT LIST GENERATOR
26_1
CELL FILTER
102
104
110_2
112_2
9-3A
9-1
9-2
$2-2$
122
DRNC
INTER-RNC MESSAGING
9-3B
CELL FILTERING FUNCTION
26_2
CELL FILTER
904
120
CELL TOPOLOGY TABLE
CELL
NEIGHBORING CELL(S)
FILTERING RULE FOR CELL
C_{2-1}
C_{1-2}, C_{3-1}, C_{3-2}, C_{2-2}
ALLOW: SG1, SG2
C_{2-2}
C_{2-1}, C_{3-2}
ALLOW: SG1, SG2
C_{1-2}
$9-2_{3-1}$
ALLOW: SG1, SG2
C_{3-1}
ALLOW: SG1
C_{3-2}
$9-2_{3-2}$
ALLOW: SG1
TABLE HANDLING LOGIC
Iub
9-6
28_{2-1}
BS
30
C_{3-1}
28_{2-2}
BS
C_{2-2}
C_{3-2}

Fig. 9

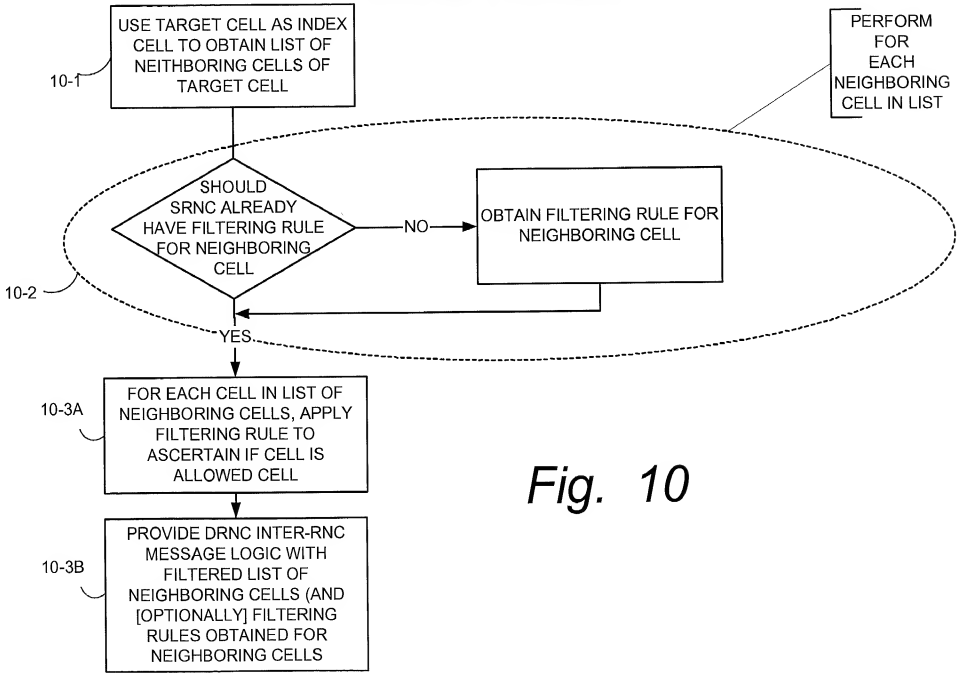

USE TARGET CELL AS INDEX CELL TO OBTAIN LIST OF NEITHBORING CELLS OF TARGET CELL
10-1
PERFORM FOR EACH NEIGHBORING CELL IN LIST
SHOULD SRNC ALREADY HAVE FILTERING RULE FOR NEIGHBORING CELL
NO
OBTAIN FILTERING RULE FOR NEIGHBORING CELL
10-2
YES
FOR EACH CELL IN LIST OF NEIGHBORING CELLS, APPLY FILTERING RULE TO ASCERTAIN IF CELL IS ALLOWED CELL
10-3A
PROVIDE DRNC INTER-RNC MESSAGE LOGIC WITH FILTERED LIST OF NEIGHBORING CELLS (AND [OPTIONALLY] FILTERING RULES OBTAINED FOR NEIGHBORING CELLS
10-3B

Fig. 10

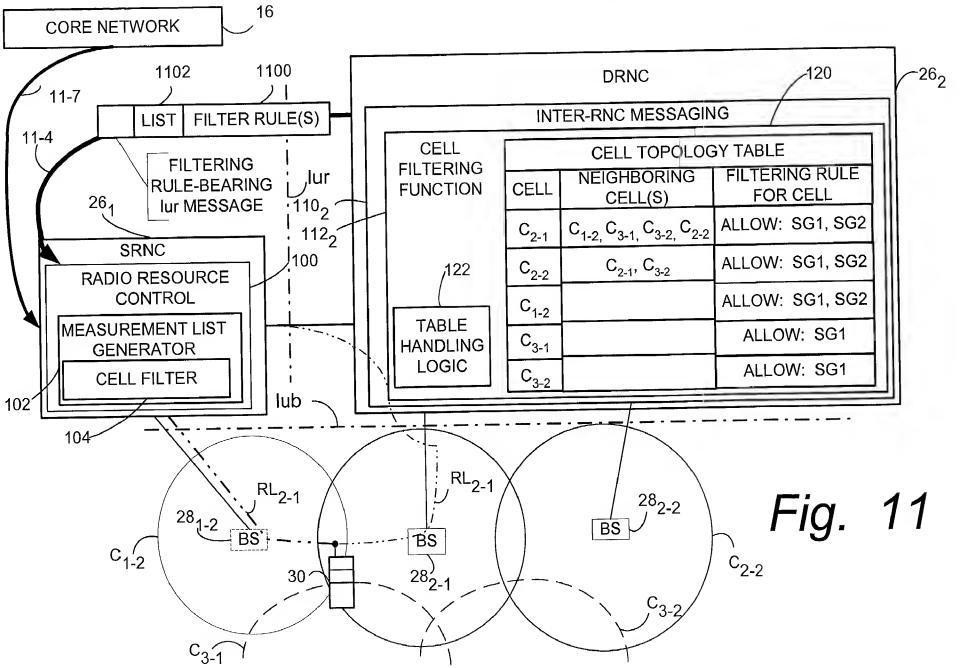

CORE NETWORK
16
11-7
1102
1100
LIST
FILTER RULE(S)
11-4
FILTERING RULE-BEARING Iur MESSAGE
Iur
110_2
112_2
26_1
SRNC
RADIO RESOURCE CONTROL
MEASUREMENT LIST GENERATOR
CELL FILTER
100
102
104
Iub
DRNC
120
26_2
INTER-RNC MESSAGING
CELL FILTERING FUNCTION
122
TABLE HANDLING LOGIC
CELL TOPOLOGY TABLE
CELL
NEIGHBORING CELL(S)
FILTERING RULE FOR CELL
C_{2-1}
C_{1-2}, C_{3-1}, C_{3-2}, C_{2-2}
ALLOW: SG1, SG2
C_{2-2}
C_{2-1}, C_{3-2}
ALLOW: SG1, SG2
C_{1-2}
ALLOW: SG1, SG2
C_{3-1}
ALLOW: SG1
C_{3-2}
ALLOW: SG1
RL_{2-1}
RL_{2-1}
28_{1-2}
BS
BS
BS
28_{2-1}
28_{2-2}
30
C_{1-2}
C_{2-2}
C_{3-2}
C_{3-1}

Fig. 11

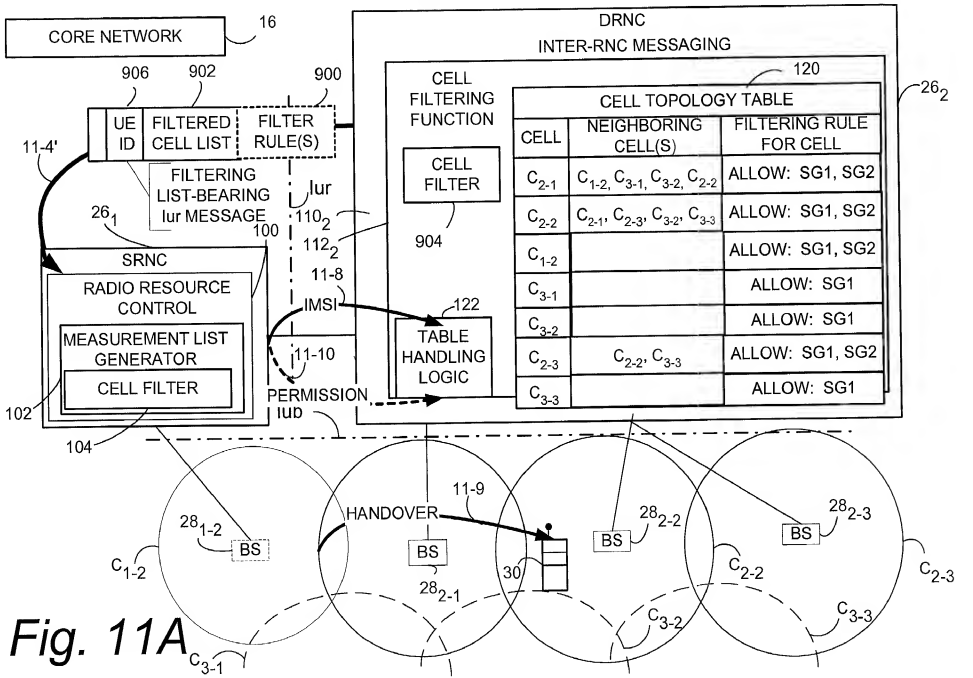

CORE NETWORK
16
DRNC
INTER-RNC MESSAGING
906
902
900
UE ID
FILTERED CELL LIST
FILTER RULE(S)
11-4'
FILTERING LIST-BEARING Iur MESSAGE
Iur
26_1
100
SRNC
RADIO RESOURCE CONTROL
MEASUREMENT LIST GENERATOR
CELL FILTER
102
104
110_2
112_2
11-8
IMSI
11-10
PERMISSION
Iub
CELL FILTERING FUNCTION
CELL FILTER
904
122
TABLE HANDLING LOGIC
120
CELL TOPOLOGY TABLE
26_2
CELL
NEIGHBORING CELL(S)
FILTERING RULE FOR CELL
C_{2-1} | $C_{1-2}, C_{3-1}, C_{3-2}, C_{2-2}$ | ALLOW: SG1, SG2
C_{2-2} | $C_{2-1}, C_{2-3}, C_{3-2}, C_{3-3}$ | ALLOW: SG1, SG2
C_{1-2} | | ALLOW: SG1, SG2
C_{3-1} | | ALLOW: SG1
C_{3-2} | | ALLOW: SG1
C_{2-3} | C_{2-2}, C_{3-3} | ALLOW: SG1, SG2
C_{3-3} | | ALLOW: SG1
HANDOVER
11-9
28_{1-2}
BS
28_{2-1}
28_{2-2}
28_{2-3}
30
C_{1-2}
C_{2-2}
C_{2-3}
C_{3-1}
C_{3-2}
C_{3-3}

Fig. 11A

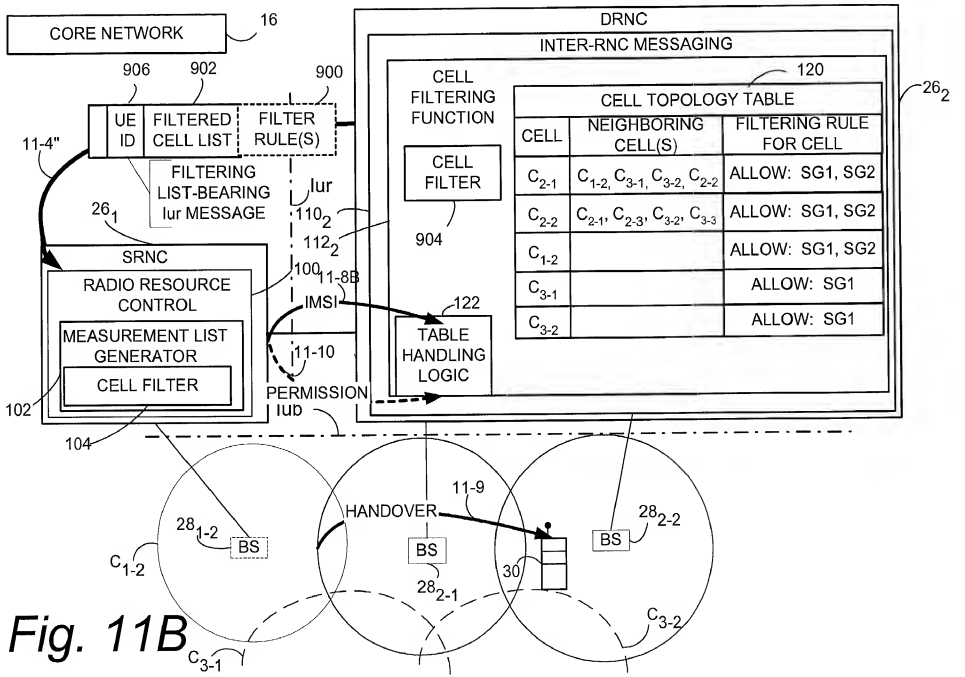

CORE NETWORK
16
DRNC
INTER-RNC MESSAGING
906
902
900
UE ID
FILTERED CELL LIST
FILTER RULE(S)
11-4"
FILTERING LIST-BEARING Iur MESSAGE
Iur
110_2
112_2
26_1
SRNC
RADIO RESOURCE CONTROL
MEASUREMENT LIST GENERATOR
CELL FILTER
100
11-8B
IMSI
11-10
PERMISSION
Iub
102
104
CELL FILTERING FUNCTION
CELL FILTER
904
122
TABLE HANDLING LOGIC
120
CELL TOPOLOGY TABLE
26_2
CELL
NEIGHBORING CELL(S)
FILTERING RULE FOR CELL
C_{2-1} | C_{1-2}, C_{3-1}, C_{3-2}, C_{2-2} | ALLOW: SG1, SG2
C_{2-2} | C_{2-1}, C_{2-3}, C_{3-2}, C_{3-3} | ALLOW: SG1, SG2
C_{1-2} | | ALLOW: SG1, SG2
C_{3-1} | | ALLOW: SG1
C_{3-2} | | ALLOW: SG1
11-9
HANDOVER
28_{1-2}
BS
C_{1-2}
28_{2-1}
28_{2-2}
30
C_{3-1}
C_{3-2}

Fig. 11B

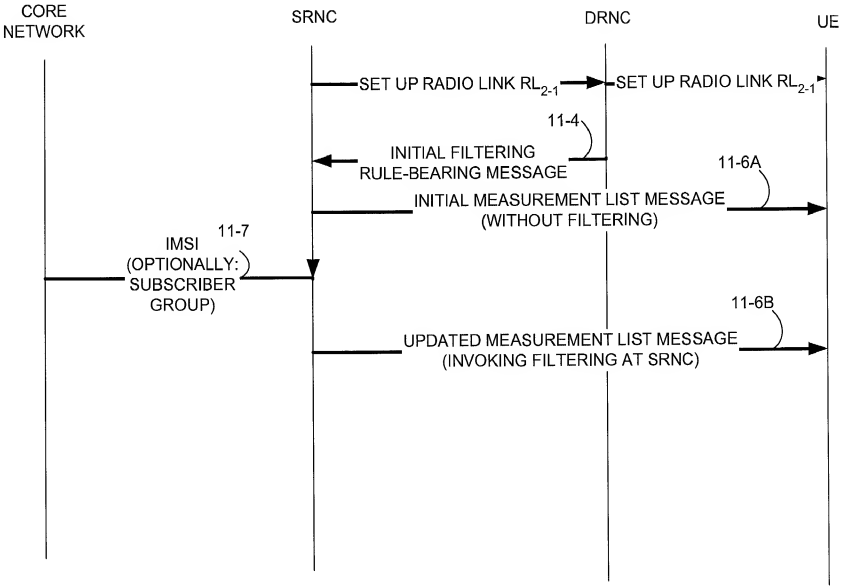

CORE NETWORK
SRNC
DRNC
UE
SET UP RADIO LINK RL2-1
SET UP RADIO LINK RL2-1
11-4
INITIAL FILTERING RULE-BEARING MESSAGE
11-6A
INITIAL MEASUREMENT LIST MESSAGE (WITHOUT FILTERING)
11-7
IMSI (OPTIONALLY: SUBSCRIBER GROUP)
11-6B
UPDATED MEASUREMENT LIST MESSAGE (INVOKING FILTERING AT SRNC)

Fig. 12

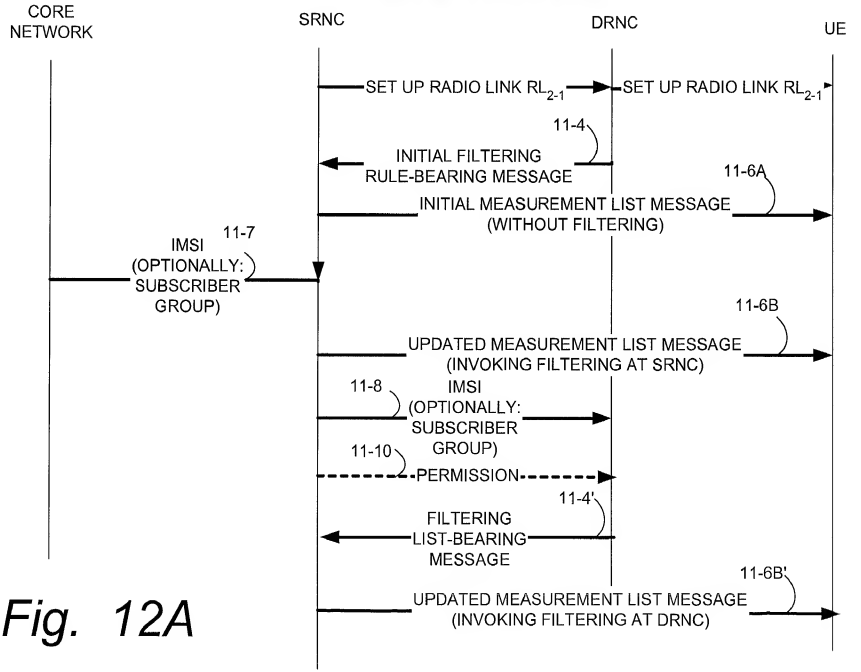

CORE NETWORK
SRNC
DRNC
UE
SET UP RADIO LINK RL2-1
SET UP RADIO LINK RL2-1
11-4
INITIAL FILTERING RULE-BEARING MESSAGE
11-6A
INITIAL MEASUREMENT LIST MESSAGE (WITHOUT FILTERING)
11-7
IMSI (OPTIONALLY: SUBSCRIBER GROUP)
11-6B
UPDATED MEASUREMENT LIST MESSAGE (INVOKING FILTERING AT SRNC)
11-8
IMSI (OPTIONALLY: SUBSCRIBER GROUP)
11-10
PERMISSION
11-4'
FILTERING LIST-BEARING MESSAGE
11-6B'
UPDATED MEASUREMENT LIST MESSAGE (INVOKING FILTERING AT DRNC)

Fig. 12A

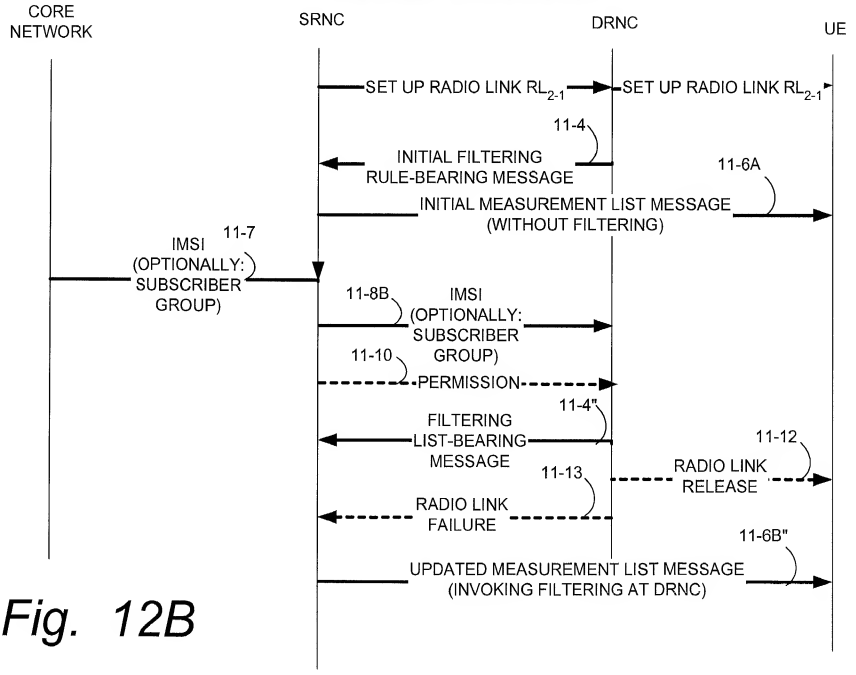

CORE NETWORK
SRNC
DRNC
UE
SET UP RADIO LINK RL2-1
SET UP RADIO LINK RL2-1
11-4
INITIAL FILTERING RULE-BEARING MESSAGE
11-6A
INITIAL MEASUREMENT LIST MESSAGE (WITHOUT FILTERING)
11-7
IMSI (OPTIONALLY: SUBSCRIBER GROUP)
11-8B
IMSI (OPTIONALLY: SUBSCRIBER GROUP)
11-10
PERMISSION
11-4"
FILTERING LIST-BEARING MESSAGE
11-12
RADIO LINK RELEASE
11-13
RADIO LINK FAILURE
11-6B"
UPDATED MEASUREMENT LIST MESSAGE (INVOKING FILTERING AT DRNC)

Fig. 12B

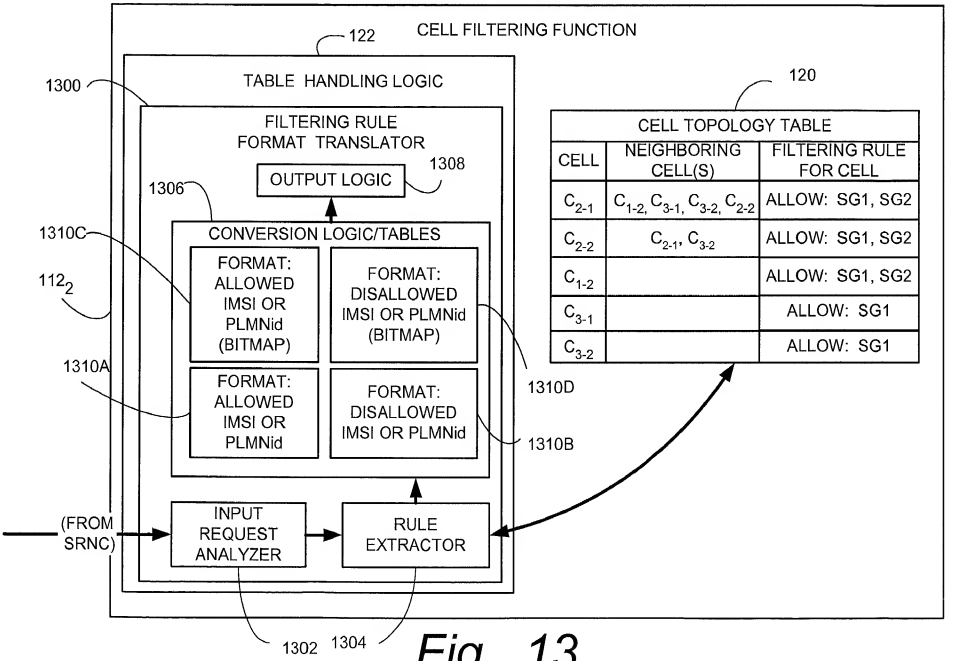

CELL FILTERING FUNCTION
122
TABLE HANDLING LOGIC
1300
FILTERING RULE FORMAT TRANSLATOR
OUTPUT LOGIC
1308
1306
CONVERSION LOGIC/TABLES
1310C
112 2
FORMAT: ALLOWED IMSI OR PLMNid (BITMAP)
FORMAT: DISALLOWED IMSI OR PLMNid (BITMAP)
1310A
FORMAT: ALLOWED IMSI OR PLMNid
FORMAT: DISALLOWED IMSI OR PLMNid
1310D
1310B
(FROM SRNC)
INPUT REQUEST ANALYZER
RULE EXTRACTOR
1302
1304
120
CELL TOPOLOGY TABLE
CELL
NEIGHBORING CELL(S)
FILTERING RULE FOR CELL
C2-1
C1-2, C3-1, C3-2, C2-2
ALLOW: SG1, SG2
C2-2
C2-1, C3-2
ALLOW: SG1, SG2
C1-2
ALLOW: SG1, SG2
C3-1
ALLOW: SG1
C3-2
ALLOW: SG1

Fig. 13